

Fetal tissue research is essential for scientific discovery and improving human health

By Hans Clevers, October 5, 2017

Decades after the U.S. Congress repeatedly reaffirmed its support for publicly funded [fetal tissue research](#)¹, investigators find themselves facing efforts [by this same body](#)² to prevent this kind of research. At issue is whether fetal tissue research continues to be necessary, whether it has the potential to contribute to new therapies, and whether sufficient safeguards are in place for the research to occur ethically.

The answer to each of those is an unequivocal “yes.” Fetal tissue has been essential in research used to develop therapies that have saved millions of lives, and it continues to be necessary for the future of medicine.

The tissue used in this research would otherwise be discarded, and safeguards have been in place for decades to ensure that the tissue is obtained and used ethically.

Why is fetal tissue [so important](#)³? It is quite different from adult tissue. It represents a specific, formative period of human development. The cells that form it have unique properties that often cannot be replaced by other cell types. These cells are more flexible and less specialized than cells from adult tissue, easier to grow, and more adaptable to new environments.

I am a stem cell researcher working in the Netherlands. Under a very strict regulatory and ethics regime, Dutch scientists have access to human fetal tissue and the stem cells that reside in these tissues. This has been essential for us to develop technologies to culture miniaturized human lungs, livers, and guts. These are rapidly replacing existing techniques for drug development that mostly use experimental animals or human cancer cells.

Fetal tissue provides an unparalleled window into how human tissues develop and are affected by disease. It helps us understand congenital defects such as those of the heart and the nervous system. It has helped us understand how viruses affect fetal development. Indeed, the use of donated fetal tissue has shown us how the [Zika virus](#)⁴ crosses the placenta and alters human brain development. That research is now guiding the development of new therapies to protect unborn babies. The idea that it would be better to discard fetal tissue than use it to protect unborn babies makes little sense to me.

Fetal tissue research has been vital for scientific and medical advances that have saved millions of lives. The development of vaccines against polio, rubella, measles, chickenpox, adenovirus, rabies, and treatments for debilitating diseases such as rheumatoid arthritis, cystic fibrosis, and hemophilia all involved fetal tissue.

It is currently being used to develop and test vaccines for potential treatment of influenza, dengue fever, HIV/AIDS, and hepatitis B and C. It is vital for research in other areas as well. Ongoing research using cells derived from fetal tissue includes work on neurodegenerative diseases such as Parkinson’s, Alzheimer’s, amyotrophic lateral sclerosis, spinal cord injury, stroke, retinal disease, and age-related macular degeneration.

Fetal tissue has been used for research in the U.S. [since the 1930s](#)⁵, with bipartisan support from the Congress and funding from the National Institutes of Health. Along the way, the policies and laws have been reviewed and updated numerous times. [Federal law was adjusted in 1975](#)⁶ to add language clarifying that this research be “conducted only in accordance with any applicable State or local laws regarding such activities,” and only for “the development of important biomedical knowledge which cannot be obtained by other means.”

In 1988, the NIH [again reviewed](#)⁷ the ethical, legal, and scientific issues surrounding fetal tissue research, conducting public hearings and deliberations before concluding that the use of human fetal tissue for research is acceptable public policy.